Book Announcements

JAMSHIDI, M., TAROKH, M., and SHAFAI, B., *Computer-Aided Analysis and Design of Linear Control Systems,* Prentice-Hall, Englewood Cliffs, NJ, 1992, 448 pages.

Purpose: This handbook presents linear multivariable control systems design using major computer-aided control system design environments such as MATLAB.

Contents: Introduction to linear control systems; state-space analysis of linear systems: system properties; state feedback and observer design; output feedback and compensator design; optimal control design; large-scale system design.

BASILE, G., and MARRO, G., *Controlled and Conditioned Invariance in Linear System Theory,* Prentice-Hall, Englewood Cliffs, NJ, 1992, 480 pages.

Purpose: This reference stresses the latest geometric methods for multivariable control system analysis and design.

Contents: Introduction to systems; general properties of linear systems; The geometric approach: analysis, synthesis, and robustness; optimality.

TEO, K. L., GOH, C. J., and WONG, K. H., *A Unified Computational Approach to Optimal Control Problems,* Longman Scientific and Technical, U.K., 1991, 329 pages, $139.00.

Purpose: This book presents the control parameterization approach to solving optimal control problems. Exercises are included in the Appendix.

Contents: Mathematical background; elements of constrained mathematical programming; elements of optimal control theory; optimal parameter selection problems; optimal control problems in canonical form; optimal control problems involving linear systems; nonlinear optimal control problems with functional inequality state constraints; optimal control problems with almost smooth controls; optimal control with a cost of changing control; discrete time optimal control problems; time-delayed optimal control problems.

CHOBOTOV, V. A., *Spacecraft Attitude Dynamics and Control,* Krieger, Melbourne, FL, 1991, 150 pages, $79.50.

Purpose: This book presents the basic concepts, methods, and mathematical developments for understanding spacecraft attitude dynamics and control. It is meant for seniors or first-year graduate students.

Contents: Kinematics and dynamics of angular motion; spin stabilization; dual-spin stabilization; three-axis active control; momentum exchange systems; environmental effects; passive gravity gradient stabilization; magnetic stabilization; stability of motion.

McNAMARA, L. F., *On-Orbit Servicing of Space Systems,* Krieger, Melbourne, FL, 1992.

Purpose: This book presents the past, present, and future of orbital servicing.

Contents: On-orbit satellite background; status of satellite servicing; mission operations; spacecraft design; servicing hardware and support equipment; benefits and economics; road map to orbital servicing.

TASCIONE, T. F., and STROTHER, E. F., *Space Environmental Hazards,* Krieger, Melbourne, FL, 1992.

Purpose: This is a reference for scientists and engineers involved in the design and construction of spacecraft.

Contents: The space environment; hazards to spacecraft electronics and humans in space; spacecraft drag and orbital debris; impacts on ground based command and control systems; strategies for survivability.